

**IOWA WATER SUMMIT
POINT SOURCE REDUCTION WORK GROUP
INTRODUCTION
November 2003**

The Point Source Reduction Work Group met seven times in the Des Moines area to discuss the priority water quality issues facing Iowa related to point source discharges. A “point source” may be defined as a source that can be distinctly identified as the origin of a pollutant. Generally, the group was of the opinion that the quality of waters in the State has improved since adoption of the first Clean Water Act in 1972 due to federal, nationwide expenditures of more than \$100 billion dollars on control of municipal and industrial discharges. Now, water quality has reached a plateau, and if we want our waters to improve further, we will need greater effort on nonpoint and point sources. The Point Source Reduction Work Group favored adoption of strong water quality standards for the State of Iowa to protect public health and aquatic life, and increased funding for chemical and biological monitoring as a means to measure performance. There were two universal priorities from the group that cut across the four subject areas of Rural Domestic Waste, Municipal Wastes, Industrial Discharges and Confined Animal Feeding Operations (CAFOs). One priority was that the overall water quality program in Iowa needs better funding for education, implementation, and enforcement at the state, county and local level. Second, the impact on small streams requires a more comprehensive permitting process and inclusion of biological monitoring in selected permits.

The Point Source Reduction Work Group prioritized four other issues from a short list of 13 issues and from spreadsheet tables of Work Group discussions including more than 25 issues. The issues were discussed, classified as consensus or non-consensus, and prioritized according to the perceived magnitude of the problem causing impaired waters. The first priority in the Rural Domestic Waste category was considered to be on-site (septic tanks, multi-flow systems, drying beds, etc.) systems which discharge without permit (or under National Pollutant Discharge Elimination System (NPDES) general permit #4) directly to lakes and streams, agriculture drainage wells, and/or tile lines. Untreated or inadequately treated discharges from these sources should stop. The second priority in the Municipal Wastes category was that the deteriorated condition of many municipal POTWs and collection systems needs repair and upgrade. Third, for Industrial and Municipal NPDES-permitted point sources, a large potential problem exists with future waste load allocations (e.g., for nutrients). New and existing NPDES permit holders could face unfair regulation unless nonpoint source load allocations are properly assigned. Fourth, for Confined Animal Feeding Operations, the Point Source Reduction Work Group recognizes the challenge that DNR will face when applying specific standards (AFO/CAFO) to individual situations on a given farm or livestock operation. The Work Group recognizes the importance of NPDES permitting for these facilities, but it recommends that each case be considered individually to ensure fairness and an acceptable level of unimpaired water quality.

Following, is a summary of the State’s highest priority point source issues.

Goal #1

Eliminate on-site systems including multi-flow septic tanks, drying beds, as well as unsewered communities, schools, trailer parks, discharging unpermitted or under NPDES general permit #4, directly to lakes, streams, tile lines, agricultural drainage wells, and seasonal cabins with inadequate sewage treatment on rivers and lakes.

Note: Effluent from *non-discharging* septic systems typically flows into a subsurface percolation field.

Require rural developments (residential, commercial and subdivisions) to have a plan for long-term wastewater treatment infrastructure in advance of construction.

End the practice by small/cottage industries of inappropriately using septic systems or discharging to lagoons, e.g.,

- **Truck fleets;**
- **Mechanic shops;**
- **Metal finishing;**
- **Dairy processing facilities**

Sub-goals

Quantify actual number of problem entities.

Assure that every community and individual home in Iowa has an approved sewer infrastructure and sewage treatment.

Reduce the number of directly discharging systems in the State.

IDNR should adopt innovative treatment methods used by other states.

Assure that high-density subdivisions and lake developments do not have a negative impact on ground or surface waters.

Treat the effluent from discharging septic systems through vegetative strips. This may effect tertiary treatment of residual pollutants and mitigate nutrients and other emerging pollutants.

Effective solids, bacteria and virus treatment.

Require sufficient space/area for percolation field.

Increase awareness of loan availability.

Prevention of sewage discharge problems by requiring that all rural developments incorporate provisions for adequate wastewater management, protective of water quality standards, at the design phase.

Improved water quality.

Inventory industries. Obtain information about their:

- Discharge;
- Treatment

Assess whether current or proposed treatment is adequate.

Identify businesses with exemplary waste treatment.

Potential Solutions

Require that septic systems be inspected at the time of title transfer to ensure that they are functioning properly.

Place restrictions on the direct discharge of septic tanks to lakes and streams.

Require nutrient removal and/or disinfection in sensitive watersheds.

Prohibit private, individual discharging systems in sub-divisions.

Place and enforce restrictions on the direct discharge of septic systems to tile lines connected to agricultural drainage wells (This happens, primarily, in 3 counties in Iowa. There are approximately 200 agricultural drainage wells left in the State.)

Require central sewer systems where housing densities exceed a certain value (i.e., ten houses per 25 acres).

Require additional treatment before direct discharge into lakes or streams; for example, consider a requirement that discharging systems must include lateral dispersal through a vegetated buffer.

Identify a management entity for each community not meeting wastewater treatment standards. Schedule sewer construction for these communities based on determined priorities.

Require cities to be responsible for sewerage all houses within the city limits either by connection to central sewer or construction of onsite systems.

Pass legislation to promote the concept of regional wastewater treatment authorities.

Establish an arbitration process, with Attorney General involvement, to help with decisions about waste treatment responsibilities.

Establish standards for those that hook up outside city limits.

Starting at the county level, promote better coordination between

cities and counties.

Develop a contractor licensing and education program to educate them about rural wastewater issues.

Establish a single point of contact for technical assistance that would plug them into Iowa Department of Natural Resources, Iowa Waste Reduction Center, Natural Resources Conservation Service and U.S. Department of Agriculture resources.

Better training, and possibly licensing or certification, of county sanitarians, so they may be more effective at assessing the wastewater treatment methods of existing small/cottage businesses.

Prevent improper management of wastewaters from occurring in the first place, by siting businesses in areas where the waste treatment infrastructure will support them.

Implementation Steps

Identify a management entity for each community.

Inventory all unsewered communities, incorporated and unincorporated, as well as all unsewered individual houses.

Quantify the number of discharging systems.

State should appoint a group to look at innovative treatment technologies for rural domestic wastes. For example, composting toilets may be feasible in some applications.

Investigate dispersal technology.

Locate or develop a brochure to educate home owners.

Distribute information with the County Extension.

Identify groups and local citizens in each watershed who are willing to promote the water quality improvement program. Empower and provide capacity to them to address local water quality issues.

Require a perpetual management entity for all clustered housing.

Develop a process to help management entities sewer each community.

Pass legislation requiring statewide septic system inspection at the time of title transfer.

Require that all new non-discharging options, including mound systems, be investigated and rejected for technical reasons before a

discharging system is allowed.

Require review of sewer plans for every proposed subdivision.

Require central or communal sewer systems where density of housing is too high and watersheds are sensitive.

Improve low interest loans for septic system upgrades (State Revolving Fund).

Provide technical support for counties to enforce rules on individual houses.

Establish an environmental tip line.

Enforce the maintenance contract for all discharging systems.

Establish statewide zoning to promote the utilization of effective wastewater treatment infrastructure, and more consistent enforcement of minimum requirements

Provide funding stream for training/certification.

Expand training opportunities for sanitarians/assessors.

Require licensing or certification for sanitarians.

Create inspection program by size:

- Impaired waters;
- Number of contaminants

Publicize businesses with exemplary waste treatment.

Educational Needs

Educate developers on proper sewer planning.

Use Natural Resources Conservation Service and extension and Farm*A*Syst.

Provide training for sanitarians, construction contractors, design engineers, and ancillary stakeholders such as realtors, bankers, and city and county elected officials.

Develop a certification program for sanitarians and contractors.

Provide training for state and local governmental officials.

Provide training on innovative technologies to sanitarians.

Gather existing educational resources.

Train county people, including sanitarians and other officials

about this problem.

Educate developers and homebuilders about effective sanitary wastewater treatment methods.

Guidance, brochures, workshops, seminars, web sites.

Funding Sources

Rural development block grants of USDA.

Traditional municipal financing.

Ensure that low interest loans are available for septic system upgrades (U.S.EPA-State Revolving Fund).

Implement builder/developer fees.

Implement permit fees.

Create a state Environmental Finance/Bonding Authority that provides financing, including state and federal tax credits.

Create financial incentives, e.g., reduction in permit fees

Implement water quality district taxes, similar to that established in Dickinson County, Iowa.

U.S.Department of Agriculture-RD
Iowa Department of Economic Development-CDBG

Clean Water Act (CWA) Sect. 319 program.

Social/Economic Impact Incorporate into the cost of new homes.

Will impact every level of government.

Cost of financing loan.

Water quality improvements improve quality of life and property values, and livability.

This will likely result in higher subdivision development costs in rural areas.

Better sewage treatment planning and construction leading to fewer water quality problems.

Better water quality for recreation.

Reduced health risks.

Reduction in the nutrient budget.

	<p>Improve quality of life in small rural communities in Iowa.</p> <p>This will add to the cost of our rural residents' monthly sewer bill, and may be a hardship on some residents.</p> <p>Developer's first costs would be higher and would likely be passed on to homeowners.</p> <p>Since mobile home parks often locate outside of city limits to avoid infrastructure costs, wastewater management/compliance cost increases might impact low and moderate income people.</p> <p>Healthier economy.</p>
Measurements of Success	<p>Fewer problems with sewer construction around lakes and rural subdivisions.</p> <p>Local: Improved Index of Biological Indicators in receiving streams.</p> <p>Statewide: reduction in number of direct discharges to surface waters.</p> <p>Number of State Revolving Fund loans.</p> <p>Decrease number of houses with no appropriate sewage treatment.</p> <p>Decrease contamination and improvement in water quality in streams, lakes, and wetlands through a reduction of nutrients, organic material, bacteria and viruses.</p> <p>Decrease exposure to health contamination in populated areas.</p> <p>Fewer environmental problems from failed wastewater treatment systems.</p> <p>Reduced violations.</p> <p>Increased number of jobs statewide.</p>

Goal #2	Increase funding for education and enforcement at the state, county and local level to improve water quality in the State.
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Potential Solutions	<p>At the county level, require septic system permits.</p> <p>Impose a user tax on products such as salt and fertilizer.</p> <p>Impose a quarter of a cent sales tax for natural resources, as is done in the state of Missouri.</p>
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	Ensure that the money collected from such taxes is directed to a dedicated fund.
	More aggressive application for federal funding.
Implementation Steps	Pass legislation (taxing bill).
Educational Needs	Gather existing educational resources.
	Cross training of personnel from state agencies.
	Realign personnel resources to areas of greatest need.
Funding Sources	Noted above.
Social/Economic Impact	Healthier communities as improvements are made to water quality resources.
Measurements of Success	Number of septic system permits issued.
	Level of assets in dedicated natural resources funds.

Goal #3

Improvement of the deteriorating condition of many municipal POTWs and collection systems.

Nationwide, the estimated cost to correct this issue is \$200 billion.

Minimize the occurrence of sanitary sewage by-passes in Iowa, due to:

- **Built-in by-pass of hydraulic overflow;**
- **Mechanical or electrical pump failure leading to intentional by-pass;**
- **By-pass at lift station into street or ditch;**
- **Blockage (roots, grease);**
- **Sewer breakage**

Reduce Inflow & Infiltration

Sub-goals

Achieve maximum reduction of traditional pollutants, nutrients, and emerging issues in cost effective and ecologically friendly manner.

Consider Watershed-based Sanitary Districts.

Minimize by-passes.

Implement Capacity Management Operation and Maintenance (CMOM) Plans.

	Limit the investment necessary for new or upgraded treatment facilities.
	Minimize infiltration & inflow; maintain optimum treatment flows.
	Educate lawmakers and government decision-makers about the urgency of this problem, and its relationship to impaired waters.
Potential Solutions	Investigate cost effective ecological waste treatment alternatives, including land application of secondary treated effluent.
	Improved Funding Mechanisms.
	Comprehensive Facility Planning.
	Upgrade infrastructure.
	Better-trained staff (Maintenance & Operations).
Implementation Steps	Develop strategic and financial plans.
	Ensure that funding can be dedicated and used for infrastructure replacement.
	Conduct dye studies, etc., to assess extent of problem.
Educational Needs	Gather resources from existing sources.
	Periodically remind federal and state lawmakers of the urgency of this problem and its potential impact on water quality. Encourage them to avoid unfunded mandates.
	Municipal bill stuffers.
	Property tax bill stuffer.
	Summit visibility.
	League of municipalities.
	Educate elected officials at all levels.
	Summit measurement of success follow-up.
	Public access cable TV.
	Statewide school curriculum.
Funding Sources	State Revolving Fund.

Increased Fees.

State Environmental Finance/Bonding Authority that provides financing, including state and federal tax credits.

Federal Block Grants

Traditional city financing.

Social/Economic Impact

Increased cost to residents to fund improvements.

Improved water quality, recreational opportunities, land values.

Significant impact on rate payers, especially in small towns.

If stormwater and infiltration and inflow are removed, the municipality may gain excess capacity for industrial or domestic growth.

If infrastructure upgrading provides additional wastewater treatment capacity in a community, it may attract new industry, and create jobs.

Measurements of Success

Reduction over time in quantities of traditional pollutants, nutrients, and emerging issues.

Improved Index of Biological Indicator scores in receiving waters.

Increase in waters “fully supporting” beneficial uses (305B report).

Reduction in number of impaired waters (303D list).

Improved financial position of municipal facilities.

Quantify volume of eliminated by-pass.

Reduced base and wet weather flows to Publicly Owned Treatment Works.

Goal #4

Reduce the impact of pollutants on small streams and implement biological monitoring in wade-able streams.

Prevent potential problems with waste load allocations for e.g., nutrients, and the conflict this may cause among dischargers in watersheds.

Allow for flexibility in applying specific practice standards (Animal Feeding Operations/Concentrated Animal Feeding Operations) to the individual situation on a given farm or livestock operation - - one-size doesn't fit all.

Sub-goals

Reduce the number of stream miles impaired.

Eliminate the use of small streams used as “trickling filter extension” of wastewater treatment plants (WWTPs).

There is a lack of knowledge of impact of point and non-point sources on the biological community. Determine actual impacts of WWTP on abundance and diversity of the aquatic ecosystems in the receiving waters.

Apply numeric aquatic life protection to all perennial and intermittent streams.

Improved water quality.

Accurate source data.

Satisfied dischargers.

Individual and general permits that reflect the diversity of situations in the field.

Full utilization of buffer and wetlands technology.

Improved siting of AFOs/CAFOs based on current regulation-based standards.

Develop environment-positive strategies on a farm-by-farm basis.

Potential Solutions

Minimize direct discharges to low-flow streams; replace with a combination of land application alternatives and increased holding capacity (release effluent only during times of high flow). For some communities, consider low-level continuous discharge rather than 2x/year requirement.

Include in-situ biological monitoring in selected permits (For example: Impaired streams or habitual violators).

Differentiate point source versus non-point impacts.

Ensure that potential contributing sources of pollutants are validated through monitoring data.

Develop plans for water sheds before TMDL allocations are made. List accordingly.

Continue discussions like the Summit Work Group beyond the Summit, to improve understanding among various interest groups to look at technical and implementation issues.

Alternative technology (e.g. site specific grass filter strips) that will be equivalent to 24-hour, 25-year event containment standard currently in place.

Flexibility for regulators & livestock producers in meeting water quality goals by adoption of Environmental Management Systems (EMS).

Implementation Steps

Assign Class B (LR) status as the “floor” for aquatic life protection for all surface waters.

During the National Pollutant Discharge Elimination System permit cycle, recalculate permit limits for all WWTP’s currently discharging into “general” streams.

Use Tom Wilton’s “reference stream” approach to establish eco-region targets for Index of Biological Indicator (IBI) scores.

Measure IBI scores above and below the discharge; Where impairment exists, establish reasonable goals and timeline for aquatic ecosystem improvement

Provide adequate resources for monitoring program to ensure personnel are well trained and data is valid.

Empower and provide capacity to local citizenry in each watershed to address local water quality issues.

Assess and target problem watersheds.

Identify and deal with impairments early to avoid TMDL allocation conflicts.

Place 303(d) waters on separate list if there is a voluntary plan for addressing impairments.

Implement long-term effort modeled after Water Quality Summit process.

Target use of data to support work group decisions on “best” use

of resources.

Agreement with EPA/DNR for alternative technology trials.

Develop framework of necessary components of an acceptable EMS.

Get Legislative approval for EMS to deal with agricultural point and nonpoint source issues.

Educational Needs

Gather information from variety of sources to develop framework.

Periodically provide training for regulators and legislators about the TMDL process, including its cost to the State and the controversy it might create among pollutant sources.

Summit and similar statewide activities.

Monitoring of alternative technologies to assure effectiveness.

Funding Sources

State Revolving Fund.

Federal Grants.

Increased user fees.

State Environmental Finance/Bonding Authority that provides financing, including state and federal tax credits.

Development of cost effective alternatives, federal grants, permit fees scaled to “pounds of pollution” discharged.

Collect fines and penalties for permit violations.

State Environmental Finance/Bonding Authority that provides financing, including state and federal tax credits.

Farmers paid through USDA/CSP.

Social/Economic Impact

Increased fees in some cases.

Improved water quality, recreational uses and increased land values.

Impacts could potentially be enormous, as it might change the fabric of the State. It might drive many farmers out of business, which will, in turn, impact small rural communities.

Compliance leading to the retention of many existing open lots.

Privatizes the environmental development and implementation.

Measurements of Success

Improved Index of Biological Indicator scores.

Better understanding and communication between various interest groups (break down “silos”).

Compliance with permits.

Adoption of EMS plans.

Measurement of water quality through EMS structure.

Goal #5

Improve environmental technical assistance for small business, as well as, communications among state entities about environmental requirements for business and industry.

Ensure that new businesses are located in areas of the State where the waste treatment infrastructure can support them.

Sub-goals

Small businesses must be more aware of:

- Wastewater discharge regulatory requirements;
- Alternatives for treatment of waste streams.

Ensure that only effective treatment systems are built.

Increase participation of agencies.

Reduce the number of ill-planned dischargers.

Offer sample Environmental Plans to small businesses as templates for them to customize for their own use.

Potential Solutions

Align new businesses with information resources.

Expanded technical support from, e.g., Iowa Waste Reduction Center, Department of Economic Development.

State entities (IDNR, DED, et al) should meet annually or semi-annually to discuss environmental requirements, especially new ones.

Consider waste treatment early in the siting process.

Empower trade organizations to assist small businesses.

Develop “approved” sample Environmental Plans or formats:

- Water
- Wastewater
- Air

- Stormwater
- Spill Prevention Control & Countermeasures (SPCC)

Facility's plans must be approved prior to any governmental funding.

State agencies should become better aware of other agency rules, goals, activities, and roles.

Implementation Steps

Task Iowa Waste Reduction Center and Department of Economic Development with a significant part of this responsibility.

Provide funding mechanisms.

Establish an information clearinghouse.

Develop environmental review protocols/checklists.

Require environmental review of treatment needs and options before siting decisions are made.

Educate funding agencies (e.g., DED) about the need for adequate waste treatment as part of the resource package.

Identify trade organization candidates, meet with them, spell out the need for assisting small businesses, and request their commitment to support the process.

Develop sample Environmental Plans:

- Retain resource to prepare sample Environmental Plans;
- Review of Plans by IDNR and legal;
- Publicize and offer to businesses

Designate a lead agency, e.g., Dept. of Economic Development.

Establish review procedure:

- IDED notifies IDNR of potential new business;
- Provide a checklist of regulatory requirements;
- Provide a list of consultants;
- Provide IDNR phone numbers

Government should appoint Water Quality Coordinating Council (e.g., Watershed Councils could report to this Council).

Educational Needs

Guidance, brochures, workshops, seminars, web sites.

Semi-annual joint meetings.

Seminars

Funding Sources

Department of Economic Development administrative funds.

State Environmental Finance/Bonding Authority that provides financing, including state and federal tax credits.

Fund through lending institutions, which might charge a fee as a percentage of the loan package for environmental planning.

Social/Economic Impact	Potential loss of business sitings (and jobs) due to uncertainty about regulatory requirements.
Measurements of Success	<p>Number of businesses contacting Iowa Waste Reduction Center or Department of Economic Development for assistance.</p> <p>Reduced number of violations.</p> <p>Harmony in the community.</p> <p>Fewer NPDES violations.</p> <p>Reduced cost to industry for appropriate waste treatment.</p> <p>Fewer impaired waters; more streams fully supporting beneficial uses.</p> <p>Optimize Index of Biological Indicator scores similar to other streams in the region.</p> <p>Number of pretreatment problems/conflicts.</p> <p>Number of requests for sample plans.</p> <p>Number of plans reviewed from companies obtaining governmental funding.</p> <p>Small businesses proactively address wastewater discharge issues.</p> <p>State entities meet regularly to keep each other informed.</p>

Goal #6	Eliminate the differences in regulation between manure or commercial fertilizer application by focusing on nutrients, rather than just manure.
Sub-goals	Encourage all producers to adopt an Environmental Management System (EMS).
Potential Solutions	State must focus on nutrients, not only manure.
Implementation Steps	Encourage/Demand the adoption of Conservation Security Program by USDA.

Educational Needs	Develop basic components for an adequate EMS.
Funding Sources	Payment through USDA/CSP.
Social/Economic Impact	More efficient application of nutrients without and within fields.
Measurements of Success	Reduced nutrients in waterways.

Goal #7	Assist farmers as they transition to being regulated at a higher level.
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Sub-goals	Use normal agricultural information/education channels (ISU Extension, commodity groups, Iowa Farm Bureau Federation). Have agricultural businesses serve as an additional source of information and education for producers.
Potential Solutions	Increase information and education programs. Educate agricultural business as well as producers of the changes in requirements.
Implementation Steps	Assessment along with sufficient time to comply.
Educational Needs	Training for new requirements by DNR, ISU, Iowa Department of Agricultural Land Stewardship.
Funding Sources	Sufficient to provide staff for training and developing educational materials.
Social/Economic Impact	Fewer farmers. Impact on smaller Iowa communities.
Measurements of Success	Compliance with rules

Goal #8	Improve the operation, maintenance, and siting of open feedlots.
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Sub-goals	Provide producers with continuing education opportunities. Adopt Best Management Practices for feedlot management.
Potential Solutions	Improve education on impact and prevention of manure runoff.

Implementation Steps	Seminars and on-farm demonstrations.
Educational Needs	Cattlemen's and similar associations, Iowa Farm Bureau Federation, Iowa Department of Natural Resources, Iowa State University Extension, County-based organizations.
Funding Sources	Banks and livestock groups.
Social/Economic Impact	Improvement of appearance, odor control, pests as well as reduced nutrient movement.
Measurements of Success	Measurable improvement in water quality.

Lingering Questions

1. Although we discussed the point source aspects of Concentrated Animal Feeding Operations (CAFOs), the Point Source Reduction Work Group has not dealt specifically with the storage, transfer and application of manure from animal feeding operations, or the total nutrient input implications relative to TMDLs, as we didn't consider these to be point source issues. Instead, we believe that the Non-point source, Impaired Waters or Nutrient Work Groups should be involved.
2. In addition, we periodically discussed the concept of forming watershed districts but did not, as a group, set goals, make recommendations, or discuss the implementation of this concept. We believe that the Impaired Waters Work Group should be involved with this issue.

Point Source Reduction Work Group Members:

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- ◆ Steve Hershner, *Cedar Rapids Water Pollution Control*
- ◆ Bill Ehm, *Iowa Department of Agriculture and Land Stewardship*
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